PROCEEDINGS

of the

American Society

of

Civil Engineers

VOL. L OCTOBER, 1924 No. 8

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Election Day

It is an act of loyalty to make use of your right of franchise. Election Day is November 4—every member of the American Society of Civil Engineers should register and vote.

Vote as you believe to be for the best interests of your country and that will be for the best interests of your Society.

Fall Meeting Detroit

Plans for the Fall Meeting in Detroit, Mich., October 22-25, 1924, are shaping toward a most successful gathering. The final program, already mailed to the membership, gives the full details for interested members. According to advance information, the consideration of the main question of the meeting—the St. Lawrence Waterway Problem—bids fair to attract wide attention and informative discussion. The various Technical Division Meetings promise also to form a valuable and interesting part of the program. Detroit offers a wealth of interest to visitors which should attract a representative attendance. The success of the certificate plan for reduced fare, again being attempted, depends on the co-operation of all members attending, especially those who live relatively near-by, to help those more distant members to whom the benefit of reduced fare would be great.

Society Meeting of September 3, 1924

At the regular meeting of the Society held on September 3, 1924, in Engineering Societies Building, 33 West 39th Street, New York, N. Y., a paper by A. C. Janni, M. Am. Soc. C. E., entitled "The Design of a Multiple-Arch System and Permissible Simplifications", was presented by the author who illustrated his remarks with lantern slides. Following Mr. Janni's presentation of the paper the subject was discussed by G. E. Beggs, M. Am. Soc. C. E., as noted subsequently in detail, followed by Messrs. D. B. Steinman, C. W. Hudson, and A. B. Cohen. Written discussions on the subject were also received from Messrs. J. Charles Rathbun, George Paaswell, and Edward Godfrey.

Vice-President Lincoln Bush presided at the meeting which was attended by about 95 members and guests. After the approval of the minutes of the Annual Convention at Pasadena, Calif., on June 18-21, 1924, as printed in the August, 1924, *Proceedings*, announcements relative to the Fall Meeting to be held in Detroit, Mich., October 22-25, 1924, were made, and a rising tribute of respect to the memory of Secretary John H. Dunlap was given.

Rensselaer Polytechnic Institute

That any American school of science and engineering should attain an age of 100 years is, in itself, a noteworthy event. Such is the thought behind

the extensive preparations to celebrate the centenary of Rensselaer Polytechnic Institute at Troy, N. Y., October 3 and 4, 1924. This celebration assumes a local, a national, and even an international aspect, through the presence on the program of distinguished statesmen, educators, and engineers of wide renown. Palmer C. Ricketts, President of the Institute, is a Member of the Society, as are large numbers of its graduates to whom this important event is just cause for pride. The Society is to be represented by President Grunsky who has been accorded, with the heads of other American and Foreign Societies, an important place on the program.

Standard Specifications for Concrete and Reinforced Concrete

The publication in this issue of *Proceedings* of the report of the Joint Committee which has long been studying and formulating Standard Specifications for Concrete and Reinforced Concrete marks another important advance in this art. In addition to the "Tentative Specifications" of the Committee, published in August, 1921, *Proceedings*, which have been used as a basis, the Standard Specifications include the results of more than two years discussion, together with extensive tests and experiments. It thus assumes an added importance and an element of authority, for which engineers have been impatiently waiting, to judge by the many inquiries that have come to the Society's office. It is a matter of justifiable pride that the Society, with so many of its members active on the Committee, should have been privileged to take a large part in this worthy endeavor.

Budgeting for Better Management

Management Week, October 20-25, 1924, is being sponsored by several National Societies with a view to interesting the smaller industrial organization in budgeting as an aid to efficiency and economy in management. The patron Societies, the representatives of which form a National Committee are: the American Society of Mechanical Engineers, the American Management Association, the Society of Industrial Engineers, the National Association of Cost Accountants, and the Taylor Society.

In communities where it has no local branch, the National Society will designate one of its resident members to serve on the local committee and to interest the civic organizations. The plan is to have these organizations in sixty-five different cities devote meetings during the week of October 20-25 to some phase of management, with special emphasis on the advantages of budgeting.

Members of the Society who are interested in this important subject will be glad to watch for Management Week as it is celebrated in their own communities.

Biographical Sketches of Official Nominees for Offices to be Filled at the Annual Election, January 21, 1925

Robert Ridgway

(Official Nominee for President)

Born October 19, 1862, Brooklyn, N. Y. (New York Univ., M. S. 1915 (Honorary); C. E. 1919 (Honorary))—1882-1884, Chainman, Rodman, Instrumentman, Northern Pacific Ry.; 1882-1883, reconnaissance surveys; 1883-1884, location and construction: 1884-1900, Instrumentman and Asst. Engr., Aqueduct Comm. of New York, N. Y.; 1884-1886, Instrumentman; 1886-1900 Asst. Engr. in charge of construction of 1½ miles of the new aqueduct and new gate-house at Old Croton Dam, Titicus River Dam and Reservoir, and the Jerome Park Reservoir: 1900-1905, Senior Asst. Engr. of Second Division and Div. Engr. of Fifth Division, Board of Rapid Transit Railroad Commrs., New York, N. Y.; 1900-1903 as Senior Asst. Engr., Second Division, on construction of that part of the first four-track subway from 41st Street and Park Avenue, Manhattan, through 42d Street to Broadway and north under that thoroughfare to 104th Street; 1903-1905 as Div. Engr. in charge of the Fifth Division, which included Sections 2, 2-A and 3 of Contract No. 2, known as the South Ferry Loop (Section 2), the Battery-Joralemon Street Tunnels under the East River (Section 2-A), and the subway under contract in Brooklyn terminating at Atlantic and Flatbush Avenues (Section 3): 1905-1912 Div. Engr. and Dept. Engr., Northern Aqueduct Dept., Board of Water Supply, New York, N. Y.; 1905-1906 Div. Engr. on studies for an aqueduct with a daily capacity of more than 500 000 000 gal.; 1906-1912 as Dept. Engr. in charge of the location and construction in Northern Aqueduct Dept., which included the northerly 60 miles of the Catskill Aqueduct, and the deep pressure tunnel under the Hudson River at Storm King, cost of work approximately $30 000 000: 1912-1921 Engr. of Subway Constr., Public Service Commission for the First District, State of New York (succeeded by the Office of Transit Construction Commissioner and Transit Commission), in charge of construction of the system of rapid transit subways and elevated lines in New York, N. Y., including five tunnels under the East and Harlem Rivers, cost when completed to be more than $300 000 000: 1921-June 30, 1924 Chf. Engr. of the Transit Commission; July 1, 1924 to date Chf. Engr., Board of Transportation, City of New York, in charge of planning and constructing rapid transit facilities for the city: 1916 Member of Chicago Traction and Subway Commission to report on and make recommendations for improvement of Chicago transit conditions.

Richard Lewis Humphrey

(Official Nominee for Vice-President)

Born October 19, 1869, Marblehead, Mass. (Philadelphia Central High School, A. B., 1888; A. M., 1893; Univ. of Pennsylvania, 1891, C. E.)—1891-1892 Draftsman, P. & R. Ry., Williamsport, Pa.: 1892-1899 Draftsman and,

later, Engr., Bureau of Surveys, City of Philadelphia, Pa., assigned successively to work on plans for the Park Boulevard (now the Parkway), Cresheim Arch of the Wissahickon High Lever Sewer, main and branch sewers, Front Street Plate Girder Bridge (100-ft. span), and the drainage of the meadow lands in South Philadelphia; Designer and Engr. in charge of Philadelphia Municipal Testing Laboratories, from which resigned in 1899: became Engr. and Gen. Mgr., Buckhorn Portland Cement Co., during ensuing four years designed, built, and operated Company's plant at Manheim, W. Va.: since 1903 Cons. Engr. and Expert to financial and corporate interests; Engr. in charge of construction of reinforced concrete Exhibition Building and assembled and installed the Collective American Portland Cement Exhibit and Model Testing Laboratory of American Portland Cement Manufacturers which received the Grand Prize, Louisiana Purchase Exposition, St. Louis, Mo., 1904; served as Cement Expert, U. S. Reclamation Service, and Cement and Concrete Expert, U. S. Geological Survey, and was Engr. in charge of and planned the Government Structural Materials Testing Laboratories in St. Louis, Mo., Pittsburgh, Pa., Northampton, Pa., and Atlantic City, N. J., 1906-1910; made an investigation for the Government on the effect of the San Francisco earthquake and fire on structures and structural materials, the results of which are published in a Government *Bulletin*; established and designed laboratory at Northampton, Pa., for testing Portland cement used in the construction of the Panama Canal and was in charge of it until 1910; 1910-1920 Cons. Engr. to U. S. Bureau of Mines; 1905-1910 Member and Secretary of National Advisory Board on Fuels and Structural Materials appointed by President Theodore Roosevelt; during the World War was appointed an expert at one dollar per annum to the Raw Materials Committee, Council of National Defense, 1917-1918; was Chf. of Building Materials Section, War Industries Board of the Council, which later was made an independent agency; was appointed Director of Building Materials and of the Building Materials Div. in 1918; handled all matters for the War Industries Board, under the direction of its Chairman, Bernard M. Baruch, relating to the conservation and distribution of building materials and supplies; was in charge of forty-three building materials industries of which thirty-eight had War Service Committees; was Member of U. S. Highway Council, representing the War Industries Board; since 1921 Chairman and, later, Pres., Pennsylvania State Board for Registration of Professional Engineers and of Land Surveyors; Member, Board of Management, representing Society, World's Congress of Engineers, 1926; has served as Member, Secretary, and Chairman of numerous Committees of the Society and of other National Technical Societies and also as Chairman of Joint Committees of several Societies.

Milo Smith Ketchum

(Official Nominee for Vice-President)

Born January 26, 1872, near Kewanee, Ill. (Elmwood, Ill., High School, 1889; Univ. of Illinois, B. S. 1895; C. E. 1900)—1895-1897 Instr. in Civ. Eng. and Mathematics, Univ. of Illinois: 1897-1899 Contracting and Designing

Engr., Gillette-Herzog Mfg. Co., with headquarters at Butte, Mont., Spokane, Wash., and Houghton, Mich.: 1899-1903 Asst. Prof. of Civ. Eng., Univ. of Illinois: 1903-1904 Contracting Mgr., American Bridge Co., in charge of Kansas City, Mo., Office: 1904-1919 Prof. of Civ. Eng., and, 1905-1919, Dean of Coll. of Eng., Univ. of Colorado: 1909-1910 Member of Firm of Crocker and Ketchum, Cons. Engrs., Denver, Colo.: 1918-1919 Asst. Director of U. S. Government Explosives Plants, in administrative charge of the construction of the $60 000 000 Smokeless Powder Plant at Nitro, W. Va.: 1919-1922 Director of Civ. Eng. Dept. and Prof. of Civ. Eng., Univ. of Pennsylvania: 1922 to date Dean of Coll. of Eng. and Director of Eng. Experiment Station, Univ. of Illinois: for twenty years has carried on a consulting practice, specializing in steel and reinforced concrete bridges, mill and mine structures: has had extensive experience in giving expert testimony and in valuation work: author of "Surveying Manual" (with W. D. Pence, M. Am. Soc. C. E.), 1900, Fourth Edition, 1914; "Design of Steel Mill Buildings and the Calculation of Stresses in Framed Structures", 1903, Fourth Edition, 1921; "Design of Walls, Bins, and Grain Elevators", 1907, Third Edition, 1918; "Design of Highway Bridges", 1908, Second Edition, 1920; "Design of Mine Structures", 1912; "Structural Engineers' Handbook", 1914, Third Edition, 1924.

Willard Townshend Chevalier

(Official Nominee for Director, District No. 1)

Born January 29, 1886, Brooklyn, N. Y. (Brooklyn Polytechnic Inst., C. E. 1910)—Jan. 1903 to April 1905, Draftsman and Asst. to Supt., Mechanical and Construction Depts. of Arbuckle Bros., Brooklyn, N. Y.: April 1905 to Jan. 1910, Draftsman, Field Insp., Constr. Foreman, and Chf. Draftsman, Consolidated Telegraph & Electrical Subway Co., New York, N. Y., on design and construction of high-tension electric conduits and accessory structures: Jan. 1910 to March 1912, Asst. Engr., Public Service Comm. for the First District, on design of Rapid Transit Subways in New York: March 1912 to Jan. 1913, Field Office Mgr. with Atlantic, Gulf & Pacific Co., Gen. Contrs. for New York State Barge Canal, Fort Edward to Whitehall Section: Jan. 1913 to Nov. 1916, Civ. Engr. with same Company, in charge of improvement and promotion of 300-acre water-front industrial development on New York Harbor, and on a variety of special work as Asst. to the President: Nov. 1916 to May 1917, Sales Mgr., American Bitumastic Enamels Co., in charge of sales and contracts in the application of bituminous compositions on waterproofing and anti-corrosion work; May 1917 to May 1919, successively, Capt., Maj., and Lt.-Col. of Engineers with 11th U. S. Engrs. on field service in France, mainly on road and railway construction and maintenance, with general military engineering: May 1919 to Oct. 1921, Gen. Mgr., American Bitumastic Enamels Co. (later, the Wailes-Dove Hermiston Corporation), on work similar to that described, together with design and installation of manu-

facturing plant extensions: Oct. 1921 to Feb. 1922 on technical advertising and promotion work: Feb. 1922 to March 1923 Associate Editor, *Engineering News-Record*: March 1923 to date, Business Mgr., *Engineering News-Record*.

Charles Gilman

(Official Nominee for Director, District No. 1)

Born May 2, 1882, Cambridge, Mass. (Lawrence Scientific School, Harvard Univ., S. B. in Civ. Eng. 1904)—1903 Asst. on Eng. Corps on construction of Harvard Stadium: 1904-1905 Rodman and Topographical Draftsman, Rapid Transit Comm., New York, N. Y.: 1905-1906, Engr. of Constr., Curtis & Co. Mfg. Co., St. Louis, Mo., in charge of laying out and erecting larger part of new manufacturing plant; designing and erecting reinforced concrete stable and factory, also, overhead traveling cranes for foundries and ice plants: 1906-1909, Engr., Quincy-Manchester-Sargent Co., on overhead traveling cranes for shops and foundries: 1909-1911 Asst. to Vice-Pres. and Engr. in Eastern Office, Rodger Ballast Car Co.: 1911-1912 Asst. to Vice-Pres. and Eastern Mgr., American Concrete Pipe & Pile Co., designing and manufacturing reinforced concrete products: 1911-1913 Vice-Pres. and Gen. Mgr., Quincy & Gilman Eng. Co.: 1912-1913, Eastern Engr.; 1913-1919, Eastern Mgr.; and 1919 to date, Vice-Pres., in charge of business in Eastern Section of United States, Massey Concrete Products Corporation, with headquarters in New York, N. Y.

Charles Milton Spofford

(Official Nominee for Director, District No. 2)

Born September 28, 1871, Georgetown, Mass. (Mass. Inst. Tech. S. B., 1893; Post-Graduate Student, 1893-1894, in Civ. Eng.)—1895-1896 and summers of 1897, 1898, and 1899, Draftsman, Phoenix Bridge Co., Phoenixville, Pa.: 1896-1905 at Mass. Inst. Tech. as Asst. (1 year), Instructor (6 years), and Asst. Prof. (2 years) in Civ. Eng.: 1905-1909 Prof. of Civ. Eng., Polytechnic Inst., Brooklyn, N. Y.; 1909 to date Hayward Prof. of Civ. Eng., Mass. Inst. Tech., in charge of Dept. of Civ. and San. Eng.: also, member of firm of Fay, Spofford, and Thorndike, Cons. Engrs., Boston, Mass., since its organization in 1914: since 1900, has been identified with numerous important engineering works, including design of certain bridges, investigation and report on others; expert engineer on investigation of strength of Blackwell's Island Bridge, 1908; member of special commission on assessment of real estate for Cambridge, Mass., 1915; member of Boston Terminal Comm., 1915-1916; member, Advisory Committee on Charles River Bridges for Metropolitan District Comm. of Massachusetts, 1921; and on proposed new Harvard Bridge, 1923: consulting engineering practice of firm, since 1914, has included Boston Army Supply Base (a $25 000 000 war project); Hampden County Memorial Bridge, Springfield, Mass.; port developments, Portland, Me., Auckland, New Zealand, and other ports, and many other projects: author of "The Theory of Structures" and of numerous contributions to technical publications.

Albert Reesor Raymer

(Official Nominee for Director, District No. 6)

Born December 1, 1862, Markham, Ont., Canada (Markham High School; Toronto Univ., Civ. Eng., 1884)—1884-1887 Rodman on Location and Res. Engr. on Construction, Northern & Pacific Junction Ry. (now Canadian National Ry): 1887-1888 Leveler on Location and Office Engr. in office of Chf. Engr. on Construction, International Ry. of Maine (now Canadian Pacific Ry.): 1888 Office Engr. on Location, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., Canada: 1889 Locating Engr., Grand Trunk Ry. (now Canadian National Ry.) Waterloo to Elmira, Ont.: 1889-1891 Office Engr. on Construction, Cumberland Valley Extension of the Louisville & Nashville R. R., Cumberland Gap, Tenn., to Big Stone Gap, Va.: 1891-1896 Asst. Engr. in charge, office and field work on maintenance of Lake Shore & Michigan Southern Ry. (now New York Central R. R.), Toledo, Ohio: 1896 Naturalized Citizen, United States: 1896 to date Pittsburgh & Lake Erie R. R. (New York Central Lines); 1896-1898 Asst. Engr.; 1898-1920 Asst. Chf. Engr.; and 1920 to date Chf. Engr., Pittsburgh, Pa.

Paul Howes Norcross

(Official Nominee for Director, District No. 10)

Born January 19, 1880, Atlanta, Ga. (Georgia School of Technology, T. E., 1902)—1902-1903 Erector of Machinery, American Machine Co., Pawtucket, R. I.: Jan.-July 1903 Div. Engr., Georgia Div., Virginia Carolina Chemical Co., preparing plans for mill buildings, warehouses, etc.: July 1903-Oct. 1905 with Carolina Steel Bridge & Constr. Co. of Burlington, N. C. (consolidated Oct. 1904 with Virginia Bridge & Iron Co., Roanoke, Va.), as follows: July 1903-Feb. 1904, Structural Draftsman; Feb.-Oct. 1904, Asst. Contr. Engr. preparing designs for bridges and structural steel; Oct. 1904-Oct. 1905, Contr. Engr. in charge of Burlington, N. C. Office, on surveys, designs, contracts, etc.: Oct.-Nov. 1905, Structural Draftsman, Riter-Conley Mfg. Co., Pittsburgh, Pa.: Nov. 1905-Jan. 1906 Structural Designer with Res. Engr., Pennsylvania and Long Island R. R. Terminal, New York, N. Y.: Jan.-April 1906, Bridge Dept. Electric Zone of New York Central R. R. with H. C. Keith, Cons. Engr., New York, N. Y., on bridge design and detail: May 1906-Jan. 1918, Member of Firm, Solomon-Norcross Co., Engrs., Atlanta, Ga., on surveys, reports, design and construction of various municipal and private projects, including water supplies, sewerage systems, sewage disposal, hydro-electric, etc., in Southern States: May 1917-Sept. 1919, Superv. Engr., Constr. Div., U. S. War Dept., at Camp Jackson, S. C., Camp Humphreys, Va., and North Camp Jackson, S. C.; also Asst. Engr. on water supplies for various camps and Land Acquisition Agt. for War Dept. at Camp Jackson, S. C., Camp Gordon, Ga., and Camp Benning, Ga.: Sept. 1919 to date, Cons. Engr., Atlanta, Ga., specializing in water supply, hydro-electric, sanitation, valuation of public utilities, reports, etc., in Southwestern United States, Bermuda, etc.: Past-

President, Atlanta (now Georgia) Section, Am. Soc. C. E.: 1920-1921 Member and Secretary of Special Comm. on Revision of Constitution, Am. Soc. C. E.: Pres., Atlanta Chamber of Commerce.

Henry Dievendorf Dewell

(Official Nominee for Director, District No. 13)

Born October 24, 1881, Springfield, Ohio (Univ. of California, B. S. in C. E. 1906)—1906-1907, Howard and Galloway, Archts. and Engrs., San Francisco, Calif., drafting and designing work in connection with buildings, bridges, reservoirs, flumes, power-houses: 1907-1908, Howard and Galloway, Supervising Archts., Alaska-Yukon Pacific Exposition, Seattle, Wash., Structural Engr. on Buildings for Exposition Co. and Insp. on Buildings for Univ. of Washington: 1909-1911, Galloway and Markwart, Civ. Engrs., San Francisco, Prin. Asst. Engr., general engineering work: 1912, Oro Electric Corporation, Chief of Party for field work for proposed hydro-electric power plants: 1912-1915 Panama-Pacific International Exposition, San Francisco, Chf. Structural Engr.; later, Asst. Supt. of Building Construction, and Engr. of Domestic Water Supply: 1916 to date private practice as Civ. Engr., San Francisco, specializing in structural work: some time Lecturer in Civ. Eng., Univ. of California: author of "Timber Framing": Associate Editor, "Handbook of Building Construction", Hool and Johnson: Associate Editor, "Steel and Timber Structures", Hool and Kinne: Secretary-Treas., San Francisco, Section, Am. Soc. C. E.

Sanitary Engineers Hold International Conference

The International Sanitary Engineering Congress held in London, England, during the week of July 7, 1924, presented a comprehensive and valuable program. The success of this conference is said to have been twofold; it has achieved an exchange of widely varied practice in Sanitary Engineering and it has promoted a round-the-world feeling of fellowship that is an essential part of professional interest.

In opening the conference with a welcome from the Council of Sanitary Engineers, Mr. J. S. Alford described the sanitation work to be done in England as that of raising the standard in backward districts rather than of undertaking ambitious schemes in specially selected districts. He suggested that the designation "Sanitary Engineer" be changed to "Sanitation Engineer". The Congress was also greeted by Mr. Gibbon on behalf of the Ministry of Health, and by John Wheatley, M. P., Minister of Health, who stressed the international importance of problems in sanitation.

The papers read at each of the two daily sessions, together with discussions of them, dealt with about eight sanitation problems of major importance. Ultimately they will be published in book form. These main topics of interest were: (1) Public Health, Administration; (2) Prevention of Malaria; (3) Activated Sludge; (4) Sewerage; (5) Disposal of Sewage and Trade Wastes; (6) Plumbing and House Drainage; (7) Refuse Disposal; and (8) Water Supply.

The official representatives of the Society, Messrs. Harrison P. Eddy, George W. Fuller, Paul Hansen, T. Chalkley Hatton, Charles H. Hurd, G. Bertram Kershaw, Langdon Pearse, George H. Shaw, and George C. Whipple, Members, Am. Soc. C. E., and Herbert E. Nicol and James Tyler, Associate members, Am. Soc. C. E., united in expressing their appreciation of the value of the conference and of the delightful hospitality that the English engineers extended to their guests.

Library Loans Stimulate Book Buying

One unexpected result of the new loan plan of the Engineering Societies Library is the extent to which members are availing themselves of the privilege of purchasing the books borrowed. The Library sends out books on what amounts to the approval plan used by some publishers. If the borrower finds that the book sent will be of permanent use to him, he can send to the Library the amount for which the book has been insured (this is equivalent to the publisher's price) and the book becomes his. If he has only a temporary need for the book he may retain it as long as required and then return it to the Library. For this a rental of 5 cents per day is charged, deducting for the time in transit.

By this plan the Library hopes to serve members to whom no large collection of engineering books is accessible. It also offers them an opportunity to keep informed concerning developments in various fields of engineering.

Requests for loans should be addressed to the Engineering Societies Library, 29 West 39th Street, New York, N. Y.

Experimental Solution of Arches

One of the important elements in the success of the Society meeting of September 3, 1924, was a delightfully interesting illustrated demonstration by George E. Beggs, M. Am. Soc. C. E., of the use of models for investigating fixed arches and other indeterminate structures. The method is applicable to engineering forms capable of representation structurally by a typical lamina. The model is made of cardboard, celluloid, or glass of uniform thickness and the deformations under loading observed. It is supported in a horizontal position on polished steel balls rolling over plate glass to eliminate appreciative friction. Loads, thrusts, shears, and moments are imparted to this miniature structure through a connection to a fixed standard by wedges, etc., at the proper point.

The basic principle involved is Maxwell's theorem of proportionality of deformation—that the thrusts, shears, and moments are related to the loads that cause them through the deformations at the respective points. Thus, a small-sized model, if it be elastic, will give this relation as well as the full-sized structure. To get the deformations, the position of a point on the model is observed through a micrometer microscope before and after the arbitrary motion (deformation) of the fixed point.

Professor Beggs showed models of many types of structures, including the triple arch of A. C. Janni, M. Am. Soc. C. E., which formed the subject of the meeting. From this latter he had obtained influence lines for reactions and moments that showed remarkable agreement with the results of Mr. Janni's graphical method using the ellipse of inertia. He also demonstrated the methods for obtaining the reactions due to a load at any point on the model, using pins to fasten the model to each support as hinges—it was quite apparent that unless the pins were on the line of the correct reactions the supports rotated as the load was applied.

Finally, a reel of motion pictures was exhibited, illustrating the change in the reactions of the triple arch model as a single load moved along and as a miniature train load progressed across.

The large number of members in attendance showed their great appreciation of Professor Beggs' efforts to make the meeting a conspicuous success. After the meeting, they tested the models and demonstrated to their own satisfaction the simplicity and utility of the methods.

Engineers Urged for Federal Tax Board

A new possibility for public service on the part of engineers is indicated by the efforts to have members of the profession chosen by the Government to help settle Federal tax appeals. The scope of these endeavors, typical of editorial suggestions in various newspapers, is indicated in the following resolution adopted by the Atlanta Chamber of Commerce, of which Paul H. Norcross, M. Am. Soc. C. E., is President:

"*Whereas,* the Federal Income Tax Law of 1924 directs that there shall be appointed by the President of the United States a Board to which shall be referred tax questions in dispute between the taxpayer and the Treasury Department involved in the Federal Estate Tax, in the Federal Income Tax and also questions arising from the old Excess Profits Tax, this Board is to be known as the United States Board of Tax Appeals, and that this Board shall be an independent agency in the Executive Branch of the Government; and

"*Whereas,* the Act further states that the Board shall be composed of not over twenty-eight members as the President determines to be necessary; and

"*Whereas,* twelve appointments have already been made to this Board leaving sixteen to be appointed;

"*Now Therefore Be It Resolved,* that in order to meet the demands of a properly aroused public opinion as evidenced by resolutions from various chambers of commerce, societies, associations, etc., that this Board should be composed of men separate and apart from the Treasury Department, freed from governmental influences, prejudices and partialities and be in fact what it was intended to be, to wit: A Board sitting to hear the facts and the law and measuring out an even justice so far as it is possible to do so.

"*Be it Further Resolved,* that of the remaining sixteen members to be appointed, a proportional representation be accorded capable business men, including Certified Public Accountants and Consulting Engineers and that the President and his advisers carefully make selection of such as are qualified by their experience, education and ability, and so far as it may be possible to do so, appointments be made with some regard to geographical location, that is, to see that the various sections of the country be represented."

Kelvin Centenary

All engineers, irrespective of nationality or specialized calling, were united at heart in observing the centenary of the birth of a great Engineer, Lord Kelvin, which celebration took place in London, England, July 10 and 11, 1924. On behalf of the Society, John R. Freeman, Past-President, attended and was privileged to offer felicitations, in part as follows:

"The American Society of Civil Engineers desires to express the appreciation of its Members for the great services of Lord Kelvin to Engineering Science.

"It may be asked just what contribution did Kelvin make to solving the problem of these special fields of Civil Engineering, and why are we who practice in these fields so desirous of bringing our tribute here.

"It is not so much because we recognize Lord Kelvin's contributions to power development at Niagara, or the great utility of his tide-computing machine, his perfection of a mariner's compass and his many aids to navigation, his improvement in the art of making soundings, his studies of waves and wave-wash in canals, as because we recognize in Kelvin the great leader in bringing together Pure Science and Applied Science; of bringing the profoundest conceptions of Science into the service of the Constructive Arts.

"It was Kelvin, first of all the great leaders, who popularized laboratory methods. Until after his leadership, even the colleges where Science was taught, forerunners of the present great schools of engineering, contained no laboratories for the use of their students.

"More than any of those who had gone before, Kelvin showed how greatly the Civil Engineer needed the service of profound mathematical analysis in some lines of problems, or the most delicate refinements of the Physicist in others of his problems. He emphasized the importance of attention to minute quantities. He showed through a half century of teaching, and gave many practical examples, how the problems of 'the great out-of-doors' dealing with the greatest magnitudes and the most powerful forces, could be taken into the laboratory of the Physicist or into the study of the Mathematician for analysis and solution. Thereby in this broad and general way, by teaching the true scientific method of approach to a problem, even more than by attention to sundry important specific problems, he greatly aided the Civil Engineer towards 'directing the great sources of power in Nature for the use and convenience of Man.'"

Specifications for Steel and Wrought Iron Pipe Approved

Another member has been added to the list of "Tentative American Standards" in the recent approval by the American Engineering Standards Committee of the "Specifications for Welded and Seamless Steel Pipe and Welded Wrought Iron Pipe" formulated by the American Society for Testing Materials. Work on these specifications for steel pipe was undertaken by that organization in 1915, and for wrought iron pipe in 1918; in 1921, the scope of the study was broadened to harmonize with the details of the American Standard Pipe Thread. The present action by the American Engineering Standards Committee is on recommendation of a special joint committee on which the Society was represented by Richard Khuen, Jr., and Forrest M. Towl, Members Am. Soc. C. E.

Local Sections*

Colorado.—June 23, 1924. The following officers were elected: President, William B. Freeman; Vice-President, Lyman E. Bishop; Secretary-Treasurer, Charles L. Chatfield.

Duluth.—June 16, 1924. "Local Taxation" by R. M. Goodrich, Secretary of the Duluth Taxpayers' League. This talk was received with much interest and was followed by discussion of the subject. Attendance 22.

June 21, 1924.—On the invitation of L. B. Arnold, Land Commissioner of the Duluth and Iron Range Railroad, members of the Section, with other guests, made an inspection trip to the County Drainage System. Attendance 31.

July 15, 1924.—A luncheon was held in honor of A. J. Grant, Engineer of the Welland Canal. Mr. Grant spoke of the Welland Canal Development with some additional remarks on the St. Lawrence Waterway.

July 21, 1924.—Mr. LeRoy M. Pharis spoke of the power development at Fond du Lac, and the general development of power in the vicinity of Duluth. Many members present contributed discussion to this subject. Attendance 28.

July 30, 1924.—A luncheon was given in honor of Director J. N. Chester, who addressed the meeting on the subject of Water Purification and Sewage Disposal Work at Erie, Pa. A resolution was adopted on the death of Secretary John H. Dunlap. Attendance 16.

August 18, 1924.—R. W. Acton, County Highway Engineer, gave an address on the Development of Highway Transportation and Highway Finance since 1905. This interesting talk was followed by a general discussion of the subject. Attendance 23.

Los Angeles.—July 9, 1924. "Sewage Disposal Plan for County of Los Angeles", by J. E. Rockhold, County Surveyor of Los Angeles County. J. L. Pomeroy, M. D., County Health Officer, added to the remarks of Mr. Rockhold by pointing out the necessity for County sanitation. A. K. Warren, Senior Engineer, County Surveyor's Office, who is in direct charge of the County sewage disposal work, told of the progress that had been made in that work to date. Attendance 65.

August 13, 1924.—Discussion on "Sewage Disposal for the County of Los Angeles" was opened by Mr. T. D. Allin, and was participated in by other members present. Resolutions were adopted relative to the death of Secretary John H. Dunlap. Attendance 61.

Louisiana.—June 5, 1924. At the Annual Meeting, the following officers were elected: President, Samuel M. Young; First Vice-President, E. S. Bres; Second Vice-President, W. T. Hogg. Messrs. D. Derickson and E. H. Coleman were elected members of the Board of Direction. Attendance 19.

Portland, Ore.—June 25, 1924. A Joint Meeting of Section and the Oregon Technical Council was held, at which Gustav Lindenthal, M. Am. Soc.

* For list of Local Sections, Officers, Rules, etc., see 1924 Year Book, p. 27.

C. E., of New York, N. Y., was the guest of honor. Mr. Lindenthal discussed some of the fundamental economic principles that confront an engineer, the bridge problems of Portland, and the new Hudson River Bridge. Attendance 42.

Sacramento.—July 1, 1924. At a Joint Meeting of members of Technical Societies in Sacramento, under the auspices of the Section, plans were made in connection with the organization of an Engineering Council. Attendance 37.

July 29, 1924. The appointment of Mr. Allen J. Wagner as City Engineer of Sacramento was announced at the regular weekly luncheon.

August 5, 1924. "Recent Investigations of Concrete by Lewis Institute", by Mr. H. F. Gonnerman, of Lewis Institute, Chicago, Ill. This talk was illustrated, and was presented at a Joint Meeting of members of Technical Societies in Sacramento. Attendance 63.

August 12, 1924. "Valuation of Public Utilities", by Robert E. McDonnell, M. Am. Soc. C. E., of Kansas City, Mo. Attendance 18.

August 19, 1924. A complimentary luncheon was given in honor of Mr. Allen J. Wagner, who recently resigned as Maintenance Engineer of the California Highway Commission to become City Engineer of Sacramento. Attendance 35.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 49 and 50 of the Year Book for 1924.

Book Notices*

(August 1 to August 30, 1924)

Analytical Mechanics. By Edwin H. Barton. Second Edition, Revised and Enlarged. Lond. & N. Y., Longmans, Green & Co., 1924. 593 pp., diagrams, tab., 9 x 6 in., cloth. $6.20.

This is a reasonably complete text-book on theoretical mechanics, intended for those possessing an elementary knowledge of the calculus. It includes kinetics and statics of solids and of fluids, mechanisms, and strains and elasticity, and covers the work required by degree candidates in British universities. The present edition has been carefully revised and many new problems added.

Linear Integral Equations. By William Vernon Lovitt. N. Y., McGraw-Hill Book Co., 1924. 253 pp., 8 x 6 in., cloth. $3.00.

This volume presents in a readable, systematic manner the general theory of linear integral equations, with some applications to differential equations, the calculus of variations, and some problems in mathematical physics, such as vibration and the flow of heat in a bar.

Planning, Erection, and Operation of Modern Open-Hearth Steel Works. By Hubert Hermanns. Lond., Ernest Benn, Ltd., 1924. 307 pp., illus., diagrams, tab., 10 x 7 in., cloth. 42s.

Most works on open-hearth steel are concerned with the metallurgy of steel production; this volume covers the design of the steel plant, the handling of materials, and the heat efficiency. The mechanical appliances are described in detail and steel-works problems are discussed. Covering a new field as it does, the book has great interest; it is based on German practice.

Principles of Railway Transportation. By Eliot Jones. N. Y., Macmillan Co., 1924. 607 pp., 9 x 6 in., cloth. $3.50.

Although it is designed primarily as a text for elementary courses, this book aims to set forth the essentials of the railroad problem with clearness, accuracy, and impartiality. General readers will also find it useful as a statement of the essential background of the railroad problem, giving an unbiased understanding of the fundamentals of the situation. The Contents are: Pt. 1, Introduction; Pt. 2, Rates and Rate Making; Pt. 3, Legislation to the Entrance of the United States into the World War, April, 1917; Pt. 4, Some Railroad Problems; Pt. 5, Railroads and the War; Pt. 6, Railroads and Reconstruction.

Properties and Uses of Wood. By Arthur Koehler. (Industrial Education Series.) N. Y., McGraw-Hill Co., 1924. 354 pp., illus., tab., 9 x 6 in., cloth. $3.50.

This new book presents in a non-technical manner, the properties of wood and their influence on its utilization. Its structure, and its physical, mechanical, and chemical properties and the factors that affect the strength of wooden members, are explained. There are also chapters on seasoning and drying, on deterioration and protection against decay and fire, and on various economic aspects of the lumber industry.

* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.	*American Concrete Institute, Proceedings* (Y.)	Detroit
A. I. E. E.	*American Institute of Electrical Engineers Journal* (M.)	New York
A. R. E. A.	*American Railway Engineering Association, Proceedings* (Y.)	Chicago
A. S. T. M.	*American Society for Testing Materials, Proceedings* (Y.)	Philadelphia
Am. Soc. C. E.	*American Society of Civil Engineers, Proceedings* (M.)	New York
Am. Soc. Mun. Impvts.	*American Society for Municipal Improvements, Proceedings* (Y.)	New York
Am. W. W. Assoc.	*American Waterworks Association, Journal* (Bi-M.)	Baltimore
Am. Wood Prs. Assoc.	*American Wood Preservers Association, Proceedings* (Y.)	Chicago
Am. P. et C.	*Annales des Ponts et Chaussées* (Bi-M.)	Paris.
Ann. T. P. Belg.	*Annales des Travaux Publics de Belgique* (Bi-M.)	Brussels
Assoc. Ing. Gand.	*Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand* (Q.)	Ghent
Bost. Soc. C. E.	*Boston Society of Civil Engineers, Journal* (M.)	Boston
Can. Engr.	*Canadian Engineer* (W.)	Toronto
Cem. Eng.	*Cement and Engineering News* (M.)	Chicago
Cornell C. E.	*Cornell Civil Engineer* (M.)	Ithaca
Dock & Harbour	*Dock and Harbour Authority* (M.)	London
Eng.	*Engineering* (W.)	London
Eng. & Contr.	*Engineering and Contracting* (W.)	Chicago
Eng. Inst. Can.	*Engineering Institute of Canada, Journal* (M.)	Montreal
Eng. N. R.	*Engineering News-Record* (W.)	New York
Engrs. Soc. Pa.	*Engineers' Society of Pennsylvania, Journal* (M.)	Harrisburg
Engrs. Soc. W. Pa.	*Engineers' Society of Western Pennsylvania, Journal* (M.)	Pittsburgh
Engr.	*Engineer* (W.)	London
Engrs. & Eng.	*Engineers and Engineering, Engineers' Club of Philadelphia* (M.)	Philadelphia
Gen. Civ.	*Le Génie Civil* (W.)	Paris
Gesund. Ing.	*Gesundheits Ingenieur* (W.)	Munich
Inst. C. E.	*Institution of Civil Engineers Minutes of Proceedings* (Q.)	London
Inst. Mun. & Co. Engrs.	*Institution of Municipal and County Engineers, Journal* (W.)	London
Int. Ry. Cong. Assoc.	*International, Railway Congress Association, Bulletin* (M.)	Brussels
Land. Arch.	*Landscape Architecture* (M.)	Harrisburg
Mech. Eng.	*Mechanical Engineering* (M.) *Journal of the American Society of Mechanical Engineers*	New York
Mil. Engr.	*Military Engineer* (M.)	Washington
Min. & Metal.	*Mining and Metallurgy* (M.) *American Institute of Mining Engineers*	New York
Mun. & Co. Eng.	*Municipal and County Engineering* (M.)	Indianapolis
N. E. W. W. Assoc.	*New England Water Works Association, Journal* (M.)	Boston
N. Y. R. R. Club.	*New York Railroad Club, Proceedings* (M.)	Brooklyn
Oest. Ing. Arch. Ver.	*Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift* (F.)	Vienna
Power	*Power* (W.)	New York
Rev. Gen.	*Revenue Générale des Chemins de Fer* (M.)	Paris
Ry. Age	*Railway Age* (W.)	New York
Ry. Eng. & Main.	*Railway Engineering and Maintenance* (M.)	Chicago
Ry. Rev.	*Railway Review* (W.)	Chicago
Schw. Bauz.	*Schweizerische Bauzeitung* (W.)	Zurich
Sci. Am.	*Scientific American* (M.)	New York
Soc. Ing. Civ. Fr.	*Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus* (Q.)	Paris
Ver. deu. Ing.	*Verein deutscher Ingenieure, Zeitschrift* (W.)	Berlin
West. Ry. Club.	*Western Railway Club, Proceedings* (M.)	Chicago
West. Soc. Engrs.	*Western Society of Engineers, Journal* (M.)	Chicago
Zeit. Bau.	*Zeitschrift fur Bauwesen* (Q.)	Berlin
Z. d. Bauver.	*Zentralblatt der Bauverwaltung* (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences

a. Processes of Calculation

2. Graphical and Nomographical Processes

The Design of a Multiple-Arch System and Permissible Simplifications.* A. C. Janni. Am. Soc. C. E. Aug., '24.

B. Applied Mechanics

b. Hydraulics

1. Processes of Measurement

Semi-Circular Weirs Calibrated at Purdue University.* F. W. Greve. Eng. N. R. July 31, '24.

2. Physical Hydraulics (Orifices, Pipes, Channels, Waves)

Neuere Berechnungsmethoden aus dem Gebiete der Hydraulik.* (Modern Methods of Calculating in Hydraulics.) E. Meyer-Peter. Schw. Bauz. Serial beginning July 5, '24.

3. Industrial Hydraulics

The Big Four in Earth's Water Powers.* Howard P. Quick. Can. Engr. July 29, '24.

The Economics of Hydro-Electric Development. Discussion: L. F. Harza, Harry A. Hageman, C. P. Dunn, Charles B. Hawley, W. S. Lee, and Brent S. Drane. Am. Soc. C. E. Aug., '24.

Calculation of Hydraulic Notch for Channel Control.* H. B. Muckleston. Eng. N. R. Aug. 7, '24.

Combating Ice in European Hydro-Electric Plant. (Abstract of paper read before World Power Conference.) Eng. N. R. Aug. 14, '24.

Water Power Development in Canada.* J. B. Challies. (Paper read before British Assoc. for Adv. Science.) Can. Engr. Aug. 19, '24.

St. Lawrence Power and Navigation Development.* R. S. Lea. Can. Engr. (Paper read before British Assoc. for Adv. Science.) Can. Engr. Serial beginning Aug. 19, '24.

L'Usine Hydro-electrique de Chancy-Pougny sur le Haut-Rhone.* (Chancy-Pougny Hydro-Electric Plant on the Upper Rhine.) Ch. Dantin. Gen. Civ. July 5, '24.

Die Erosionsrinne der Staumauer im Schräh des Kraftwerks Wäggital.* (Erosion Channel in the Dam on the Schräh at the Wäggital Power Plant.) Schw. Bauz. July 5, '24.

Das Kraftwerke Burghausen der Alzwerke G. m. b. H.* (Burghausen Power Plant of the Alzwerke, G. m. b. H.) Georg Wolff. Ver. deu. Ing. July 12, '24.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, etc.

Researches on Theory of Fine Grinding.* (From report of British Portland Cement Research Assoc.) Cem. & Eng. Aug., '24.

The Deterioration and Preservative Treatment of Timber.* A. S. Dawson. Eng. Inst. Can. Aug., '24.

Analysis of Grading Curve for Concrete Aggregates.* L. I. Hewes. Eng. N. R. Aug. 7, '24.

L'Influence des Pouzzolanes sur les Ciments. (Influence of Pouzzolanes on Cements.) Olivier Raulin. Gen. Civ. July 12, '24.

Planchers à Poutrelles en Acier ou en Bois avec Hourdis en Béton Armé.* (Steel or Wood Ceiling Beams with Reinforced Concrete Slabs.) F. Chaudy. Gen. Civ. July 26, '24.

b. Metals

L'Etat Actuel de la Soudre Autogène et du Découpage des Métaux.* (Actual Status of Autogenous Welding and Cutting of Metals.) R. Thomas. Soc. Ing. Civ. Fr. Jan., '24.

Les Meilleures Conditions du Travail à la Perseuse pour Métaux.* (Better Conditions for Operating the Metal Drilling Machine.) N. Sawine. Gen. Civ. July 26, '24.

c. Preservation and Use of Materials.

Prevention of Corrosion of Iron and Steel.* Charles Page Perin. Engrs. & Eng. Aug., '24.

e. Earthwork. Cubage. Excavating Machinery

Cableways Handle Excavation and Fill on Wisconsin Dam.* Eng. N. R. Aug. 21, '24.

f. Rock Excavation. Mining. Rock Removal

Abstracts of Institute Papers. Min. & Metal. Aug., 24.

Economical Liquid Oxygen Blasting.* F. W. O'Neil. Cem. & Eng. Aug., '24.

g. Execution of Works. Specifications

2. of Concrete

Concrete and Its Uses in the Construction of the British Empire Exhibition.* E. Owen Williams. Inst. Mun. & Co. Eng. Aug. 12, '24.

5. of Reinforced Concrete

L'Autodrome de Miramas (Bouches-du-Rhone).* (The Miramas Autodrome (Bouches-du-Rhone).) A. Cochet. Gen. Civ. July 12, '24.

h. Foundations

Using Concrete Mattresses for Foundations.* Ry. Age Aug. 9, '24.

Saving a Rotting Concrete Bridge.* Harold P. Brown. Sci. Am. Sept., '24.

j. Piles and Pile Driving

Building a Pile Foundation for a Marsh-Land Factory.* R. L. Hart. Eng. N. R. Aug. 7, '24.

k. Tunnels and Tunneling-Shields

Tunneling in Volcanic Formations on Pit River Project.* Eng. N. R. July 31, '24.
Concrete Flumes Solve Tunnel Drainage Problem.* M. F. Clements. Ry. Age Aug. 2, '24.
Natural Ventilation in the Liberty Tunnels.* A. C. Fieldner and others. Eng. N. R. Aug. 21, '24.
Hauptschacht-gefässförderungen.* (Main Shaft Bucket Hoists.) L. Schutt. Ver. Deu. Ing. Serial beginning June 28, '24.
Vom Bau des "Tunnel du Rove" im Schiffahrtskanal Marseille-Rhone.* (Construction of the "Tunnel du Rove" Marseille-Rhone Ship Canal.) C. Andrea. Schw. Bauz. July 19, 24.

D. Highways

c. Construction

Modern Methods on Ancient Roads in Durham City.* J. W. Green. Inst. Mun. & Co. Engrs. July 29, '24.
Researches on the Structural Design of Highways by the United States Bureau of Public Roads. Discussion: Jacob Feld. Am. Soc. C. E. Aug., '24.
Frictional Resistance of Concrete on Various Subbases.* A. T. Goldbeck. (From *Public Roads.*) Engr. & Contr. Aug. 6, '24.
Refined Tar in Highway Construction.* John S. Crandell. (Paper read before Can. Good Roads Assoc.) Eng. & Contr. Aug. 6, '24.
Inspecting Modified Topeka Mixer Asphaltic Concrete Paving.* R. B. Lee. (Paper read before Kansas Eng. Soc.) Eng. & Contr. Aug. 6, '24.
Checking of Concrete Road Surfaces.* G. A. MacDonald. Can. Engr. Aug. 12, '24.
Highway Construction in Nova Scotia.* R. W. McColough. Can. Engr. Aug. 12, '24.
Street Pavement Design Based on Bates Road Tests.* J. C. Keeley. Eng. N. R. Aug. 21, '24.

d. Maintenance

Gravel Road Maintenance in Maine. Paul D. Sargent. (Paper read before Can. Good Roads Assoc.) Eng. & Contr. Aug. 6, '24.
Accelerated Wear Tests of Concrete Pavements.* F. H. Jackson and J. T. Pauls. (From *Public Roads.*) Eng. & Contr. Aug. 6, '24.

h. Vehicles. Automobiles. Traffic

Street Traffic Regulation by Means of Coloured Signals.* W. R. Manning. Inst. Mun. & Co. Engrs. July 29, '24.
Highway Research in Illinois. Discussion: H. F. Clemmer. Am. Soc. C. E. Aug., '24.
Increasing the Capacity of Existing Streets.* Discussion: E. P. Goodrich and John A. Miller, Jr. Am. Soc. C. E. Aug., '24.
A Super-Highway Plan for Greater Detroit.* Eng. & Contr. Aug. 6, '24.
La Traction Hors Route.* (Traction without Roads.) L.-A. Legros. Soc. Ing. Civ. Fr. Jan., '14.

E. Bridges, Viaducts, and Arches

b. Iron or Steel Bridges and Viaducts

Wrecked Bridge Span Raised Bodily from Bay Bottom.* Eng. N. R. Aug. 21, '24.
Zur Frage der zulässigen Beanspruchung der eisernen Brücken.* (On the Question of the Permissible Stress in Iron Bridges.) J. Melan. Oest. Ing. Arch. Ver. July 11, '24.

d. Concrete and Reinforced Concrete Bridges and Viaducts

The Western Gateway Bridge at Schenectady.* Eng. & Contr. July 23, '24.
Long Girder Spans for Reinforced Concrete Bridge.* Ry. Rev. Aug. 9, '24.
Measured Changes in Shape of Multi-Arch Bridge.* P. L. Brockway. Eng. N. R. Aug. 21, '24.

h. Computations, Tests, etc.

Internationaler Wettbewerb für die Nygaards-Brücke in Bergen (Norwegen).* (International Competition for the Nygaard Bridge in Bergen (Norway).) K. Baritsch. Z. d. Bauver. June 25, '24.

x. Miscellaneous

The Secondary Effect of Certain Important River Bridges on Local Transit Conditions. Discussion: Charles Evan Fowler, M. W. Weir, Herman H. Smith, D. B. Steinman, H M. Lewis, and T. Kennard Thomson. Am. Soc. C. E. Aug., '24.

F. Inland Waters

a. Natural Waterways (General Articles)

The Colorado River Problem.* William Kelly. Am. Soc. C. E. Aug., '24.

b. Canals (General Articles)

Die Kanalisierung der oberen Oder vonder Neissemündung bis oberhalb Breslau.* (Canalization of the Upper Oder from Neissemündung to Beyond Breslau.) Schulte. Zeit. Bau. Pt. 1 (Ingenieurbauteil), '24.

c. Regulation of Waterways, Volumes of Discharge, Freshets, Floods, Soundings

Die Verbesserung der Schiffahrtstrasse und des Hochwasserabflusses bei Breslau.* (Improving the Canal and High Water Outlet at Breslau.) Schulte. Zeit. Bau. Serial beginning Pt. 1 (Ingenieurbauteil), '24.

Der Ausbau des Rheins zwischen Basel und Bodensee.* (Developing the Rhine Between Basel and Lake Constance.) E. Mattern. Ver. deu. Ing. Serial beginning July 19, '24.

j. River Equipment, Lake Ports

Concrete Sheetpile Levee Wall at New Orleans.* W. M. Peters. Eng. N. R. Aug. 14, '24.

k. Utilization of Inland Waterways, Freight, Capacity

Waterway and Railway Equivalents.* William M. Black. Am. Soc. C. E. Aug., '24.

G. Maritime Works

h. Wharves, Mooring Buoys, Harbor Equipment

Port Accommodation and the Future Dimensions of Ships.* Cyril R. Kirkpatrick. (Report to International Navigation Congress.) Dock & Harbour Aug., '24.

The Attainment of Maximum Speed in the Mechanical Handling of Miscellaneous Cargo.* H. McL. Harding. (Paper read before Am. Assoc. Port Authorities.) Dock & Harbour Aug., '24.

Construction of the Ballantyne Pier, Vancouver.* A. L. Harvey. Can. Engr. Aug. 19, '24.

i. Harbors (General Articles)

The Docks at Kingston-upon-Hull.* J. L. Calvard. Dock & Harbour Serial beginning Aug., '24.

j. Dockyard Machinery and Shipyards. Dry Docks

Ein neues Schwimmerschiffshebewerk.* (A New Lift Lock.) Zeit. Bau. July 9, '24.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics

a. Railroads

1. General Articles

Nouveau Projet de Jonction par Voie Ferrée entre Calais et Douvres, par Jetées, Viaducs et Digue en Béton Armée.* (New Plan to Join Calais and Dover by Rail by Piers, Viaducts and Reinforced Concrete Embankment.) L. and H. Faron. Gen. Civ. June 28, '24.

4. Track

Elimination of Grade Crossings. Robert H. Ford. West. Soc. Engrs. Aug., '24.

Snow and Snowshed Problems in Alaska.* Waldemar Engberg. Ry. Eng. & Main. Aug., '24.

Mechanical Adjustment of Grade for Gravity Switching.* Eng. N. R. Aug. 14, '24.

Clearance Requirements on Curved Track.* Jacob Feld. Ry. Rev. Aug. 16, '24.

Rebuilding 178 Miles of Line in Four Months.* William S. Wollner. Ry. Age Aug. 23, '24.

6. Rolling Stock (Locomotives, cars). Fuel

Four-Sheet Fireboxes for Mallet Locomotives.* Ry. Rev. Aug. 2, '24.

Ortheograph Records Locomotive Characteristics.* P. M. Gillilan. Ry. Age Aug. 16, '24.

A Successful Unaflow Locomotive is Built.* J. Stumpf. Ry. Age Aug. 23. '24.

Notes sur la Chaudiere Locomotive. (Notes on the Locomotive Boiler.) Maurice Demoulin. Gen. Civ. Serial beginning July 12, '24.

7. Use of Electricity

L'Etat Actuel de l'Electrification des Chemins de Fer Federaux Suisses.* (Actual Status of the Electrification of the Swiss Federal Railroads.) Gen. Civ. June 28, '24.

Die elektrischen Lokomotiven der S. B. B.* (Electric Locomotives of the S. B. B.) Max Weiss. Schw. Bauz. July 5, '24.

8. Stations, Engine Houses, Shops, Terminals

Turntable Renewal is Accomplished Under Difficulty.* R. C. Henderson. Ry. Eng. & Main. Aug., '24.

Layout and Design of Large Modern Freight Terminal.* Eng. N. R. Aug. 7, '24.

Station Designed for Occasional Crowds at Champaign.* Eng. N R. Aug. 21, '24.

A Visit to a Well Organized Railroad Blacksmith Shop.* Ry. Rev. Serial beginning Aug. 23, '24.

Die neue Wasserversorgung des Bahnhofs Altenhundem.* (New Water Supply for the Altenhundem Station.) Abrahams. Zeit. Bau. Pt. 1 (Ingenieureauteil), '24.

Deutsche Eisenbahnhochbauten in Luxemburg.* (German Railroad Buildings in Luxemburg.) Jüsgen, Z. d. Bauver. July 16, '24.

10. Accidents

Die Unfallverhütung im Bilde.* (Accident Prevention in Pictures.) Wolff. Z. d. Bauver. July 16, '24.

c. Ferry Boats

Cradles for a Train Ferry Service in Nigeria.* Engr. Aug. 15, '24.

d. Street Railway, Elevated Railways, Subways

1. General Articles

Jackson Street Subway, Camden Terminal.* Ry. Rev. Aug. 23, '24.

f. Aeronautics

1. General Articles

La Navigation Aerienne Guidee par un Champ Electromagnetique.* (Aerial Navigation Guided by an Electromagnetic Field.) Gen. Civ. June 28, '24.

4. Aerodromes and Landing Fields

Omaha Aerial Mail Hangar Wrecked by Gale.* Rodman M. Brown. Eng. N. R. July 31, '24.

x. Miscellaneous

Le XIX^e Congrès International de Tramways, de Chemins de Fer d'Intérêt Local et de Transports Publics Automobiles (Paris, 16–22 juin 1924).* (XIX International Congress of Tramways, Feeder Lines and Auto-Buses.) P. Calfas. Gen. Civ. July 5, '24.

I. Municipal Water-Works. Agricultural Engineering

a. General Articles

Zur Ergiebigkeit und Absenkung artesischer Brunnen.* (Productiveness and Sinking of Artesian Wells.) M. Rother. Gesund. Ing. July 26, '24.

b. Hydrology. Water Resources

Producing Artificial Ground Water at Frankfort, Germany.* Dr. Scheelhaase and Gordon M. Fair. Eng. N. R. July 31, '24.

c. Dams and Reservoirs

The Hydraulic Design of the Shaft Spillway for the Davis Bridge Dam, and Hydraulic Tests on Working Models.* Discussion: F. W. Scheidenhelm and H. K. Barrows. Am. Soc. C. E. Aug., '24.

Official Report on Collapse of Gleno Dam.* Eng. N. R. Aug. 7, '24.

Method of Constructing Concrete Dam in Zero Temperature.* Geo. H. Kohl. (From *Contract Record and Engineering Review.*) Eng. & Contr. Aug. 13, '24.

Les Barrages à Voutes Multiples et al Sécurité. (Multiple Arch Dams and Safety.) E. Baticle. Gen. Civ. July 12, '24.

d. Analysis and Purification of Water

Mechanical Filtration Plant at Putnam, Connecticut.* Fred O. Stevens. N. E. W. W. Assoc. June, '24.

Random Notes on Sanitation in New Hampshire. Charles L. Pool. N. E. W. W. Assoc. June, '24.

Second Water Purification Works for Oklahoma City.* Eng. N. R. Aug. 7, '24.

e. Distribution of Water

A "Suction Booster" for Centrifugal Pumps.* Frank S. Broadhurst. N. E. W. W. Assoc. June, '24.

Auskleidung der Wasserleitungs-Druckstollen. (Lining Water Conduit Pressure Galleries.) H. Keller. Z. d. Bauver. April 23, '24.

f. Drainage of Land

Handling Silt in Settling Basins.* Roy M. Towl. (From *National Reclamation Magazine.*) Eng. & Contr. Aug., '24.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

Vitrified Tile Liners Used in Los Angeles Sewers.* Eng. N. R. July 31, '24.

Making the Concrete Pipe for Los Angeles Outfall Sewer.* Eng. N. R. Aug. 21, '24.

b. Sewage Disposal. Purification

Gates and Screens, Sewage Treatment Plant, Queens Borough, New York. Eng. & Contr. July 30, '24.

Developments in Garbage Reduction in Indianapolis. E. W. McCullough. (From paper read before Indiana San. and Water Supply Assoc.) Eng. & Contr. Aug., '24.

Imhoff Tanks—Reasons for Differences in Behavior.* Discussion: George T. Hammond, John F. Skinner, John R. Downes, and David A. Hartwell. Am. Soc. C. E. Aug., '24.

Activated Sludge Dewatering Experience.* Langdon Pearse. (Paper read before International Conference on Sanitary Eng.) Can. Engr. Aug. 12, '24.

Sewage Disposal in Sheffield.* John Haworth. Inst. Mun. & Co. Engrs. Aug. 12, '24.

c. Refuse Disposal

Düngeversuche mit Feinmüll und Mengedünger als Ausgangspunkt für eine wirtschaftlichere Verwertung der städtischen Abfallstoffe, Hausmüll und Klärschlamm.* (Fertilizer Experiments with Fine Refuse and Mixed Fertilizer as the Starting Point for a More Economical Utilization of City Wastes, House Refuse and Sludge.) Jakob Bodler. Gesund. Ing. June 28, '24.

Literaturangaben über die Verwertung der städtischen Abgänge. (References to Literature on the Utilization of Municipal Wastes.) Walter Klemm. Gesund. Ing. June 28, '24.

Die städtische Abfallwirtschaft.* (The City Waste Industry.) Fleck and Heilmann. Gesund. Ing. June 28, '24.

Bewirtschaftung städtischer Abgänge.* (Treatment of City Waste.) Weyrauch. Gesund. Ing. June 28, '24.

K. Heat Engines

a. Steam Engines. Boilers

Récents Perfectionnements dans la Construction des Grandes Turbines à Vapeur, en Angleterre.* (Recent Improvements in the Construction of Large Steam Turbines in England.) H. Guerin. Gen. Civ. June 28, '24.

c. Gas and Oil Engines

L'Evolution des Moteurs à Huiles Lourdes.* (Evolution of the Heavy Oil Motor.) R.-E. Mathot. Soc. Ing. Civ. Fr. Jan., '24.

L. Electricity

b. Distribution and Transmission of Electricity

Hydroelectric Practices and Equipment of the South.* O. G. Thurlow and J. A. Sirnit. A. I. E. E. Aug., '24.

A Model Oil-Burning Railroad Power Plant.* Ry. Age Aug. 9, '24.

M. Architecture

b. Business and Commercial Buildings

Highest Concrete Building; 274 Ft. Above Sidewalk.* Eng. N. R. July 31, '24.

Virginia Builds Office Buildings for State Departments.* Eng. N. R. Aug. 14, '24.

Les Nouveaux Magasins du Printemps, a Paris.* (New Printempts Store in Paris.) Jacques Michaut. Gen. Civ. July 26, '24.

c. Residences, Hotels

Hotel Design and Equipment.* (From *American Builder.*) Eng. & Contr. July 23, '24.

Kleinere Wohnbauten im Reichsbahndirektionsbezirk Berlin.* (Small Dwellings in the Reichsbahn District of Berlin.) Röttcher. Z. d. Bauver. April 23, '24.

f. Factories and Mill Buildings

The Starch Dust Explosion at Pekin, Illinois.* David J. Price. West. Soc. Engrs. Aug., '24.

g. Other Buildings

Strain of Swaying Crowds on Balcony Measured at Iowa.* Eng. N. R. Aug. 7, '24.

La Piscine et les Bains-Douches Municipaux de la Butte-aux-Cailles, à Paris.* (Municipal Pool and Shower Baths on Butte-aux-Cailles, Paris.) A. Bidault des Chaumes. Gen. Civ. July 19, '24.

h. Roofs and Domes

Analytical Solution of Masonry Domes.* Discussion: Charles S. Whitney and William Cain. Am. Soc. C. E. Aug., '24.

i. Fire Protection

Current Practice in Charges for Private Fire Protection.* H. A. Burnham. N. E. W. W. Assoc. Juné, '24.

Comparison of Types of Fireproof Construction.* Chester L. Post. West. Soc. Engrs. July, '24.

Analysis of Cost of Types of Fireproof Construction.* Arthur F. Klein. West. Soc. Engrs. July, '24.

x. Miscellaneous

Baumesse und Bauausstellung Breslau 1924.* (The 1924 Breslau Construction Fair and Exhibition.) Grotte. Z. d. Bauver. July 2, '24.

Moderne Wiener Architektur.* (Modern Vienna Architecture.) W. J. Tobler. Schw. Bauz. Serial beginning July 5, '24.

O. Administration. Legislation. Economics. Statistics

Economics in Engineering. Henry E. Riggs. West. Soc. Engrs. July, '24.

Q. Surveying and Geodesy

Geodetic Survey Makes Precise Ice Traverse in Minnesota.* Casper M. Durgin. Eng. N. R. Aug. 7, '24.

Aerial Maps Made to Facilitate California Home-Site Survey.* Theodore R. Mini. Eng. N. R. Aug. 14, '24.

S. City Planning

City Replanning.* Harvey Wiley Corbett. Engrs. & Eng. July, '24.

Die städtebauliche Entwicklung des Ruhrgebiets unter dem Einfluss des Kohlenbergbaus.* (Municipal Development of the Ruhr Region under the Influence of Coal Mining.) Hermann Schultze. Zeit. Bau. Pt. 4 (Hochbauteil), '24.

Generalbaulinienplan Alt- und Neuötting.* (General Construction Plans of Altötting and Neuötting.) Hans Hörmann. Zeit. Bau. Pt. 4 (Hochbauteil), '24.

Stätten- und Städtebau in Frankfurt a. d. Oder.* (Domestic and Municipal Construction in Frankfurt on the Oder.) Martin Kiessling. Zeit. Bau. Pt. 7 (Hochbauteil), '24.

Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers as a co-operative Bureau available only to their membership, and maintained by the contributions from the Societies and their individual members who are directly benefited.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Bureau for a period of three months and are renewable on request. Notice for *Proceedings* should be addressed to Employment Service, 33 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and is available to members of the Societies concerned at a subscription rate of $3 per quarter, or $10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of $10 for all positions paying a salary of $2 000 or less per annum; $10 plus 1% of all amounts in excess of $2 000 per annum; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with a two-cent stamp attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Bureau after the positions to which they refer have been filled, will not be forwarded.

POSITIONS AVAILABLE

FIELD ENGINEERS (2), 27 to 35, in contract bond department. Prefer Associate Members or Members, Am. Soc. C. E., with at least five years active construction experience, good personality, and ability to talk convincingly. Single men, as much traveling is involved. Salary, $2 000 to $3 000 per year and expenses at start, depending on previous experience and qualifications; opportunity for advancement to desirable permanent connection. Reply by letter stating age, education, married or single, complete experience, actual duties performed each job or organization, and salary received, also references. Interview can be arranged in any large city. Location, Connecticut. R–4312.

MEN AVAILABLE

CITY PLANNING ENGINEER, Assoc. M. Am. Soc. C. E. Twenty years' experience in all phases of city development, city planning, housing, zoning, parks, subdivisions, highways, traffic, industrial expansion, etc. Experience in United States, Canada, and Europe. Capable writer and speaker. Open for any position in city planning work. A–1521.

CIVIL ENGINEER, M. Am. Soc. C. E., seeking connection with consulting engineer; B. C. E. and C. E.; age 42; single. Seventeen years' continuous engineering ex-

perience in railroad, irrigation, reclamation, highways, sewers, and water. Four years' executive positions in large organization; six years with consulting firm on special investigations, reports, design, and supervision of construction. Location east of Mississippi River preferred. A–2869.

ASSOCIATE MEMBER, Am. Soc. C. E.; three university degrees. Fifteen years field experience wants position in hydraulic or hydro-electric development irrigation, concrete, or earthwork. Working knowledge of Spanish. Is willing to go abroad. Salary depends on location, future, etc., but is not working for experience. B–285.

CONSTRUCTION AND STRUCTURAL ENGINEER, M. Am. Soc. C. E.; age 47; married. Twenty-five years' experience; six years on design, remainder on construction of sewers, subways, structural steel and reinforced concrete structures, and appraisal work. Has had responsible charge of large construction. Good organizer and executive; prefer Eastern States. B–1560.

CONSTRUCTION ENGINEER, M. Am. Soc. C. E.; married; splendid health; good habits; active and energetic; good appearance. Twenty-five years' experience on railroad, municipal, and highway work. At present employed, but desires a change. Prefers location in the East. Least salary $3 600. B–5666.

ENGINEERING EXECUTIVE, M. Am. Soc. C. E.; age 43; married; vigorous health. Varied experience over twenty years, including construction, maintenance and operation of railway lines, plans, estimates, reports, and cost data. Now engaged. Correspondence desired with railway or engineering firm in Eastern States. References or details of experience on request. Conditions of engagement to be determined. B–6912.

CIVIL-MECHANICAL ENGINEER, Assoc. M. Am. Soc. C. E.; graduate; age 56. Experienced in railroad, industrial plants, apparatus design, marine construction, river and harbor improvement, foundations and supervision of construction. Available September 1. Salary $4 000. B–7018.

MEMBER, Am. Soc. C. E. and Am. Inst. E. E., with extensive experience in this and foreign countries in executive capacities for large corporations, and in investigating and reporting on public utilities and water power, is available for home or foreign engagement. Clean and unbroken record to date. B–8480.

STRUCTURAL ENGINEER, Assoc. M. Am. Soc. C. E.; B. S. E. (Civ.); age 38; married. Experienced in reinforced concrete and structural steel design. Some experience in fabrication and erection. Three years' experience teaching mechanics, theory of structures and design in large engineering college. All previous employers are references. Desires appointment in college or university. B–8524.

CIVIL AND SANITARY ENGINEER, Jun. Am. Soc. C. E.; B. S. in Civil Engineering; M. S. in Sanitary Engineering; age 26; American. One year with health department, one year with consulting engineer. Available on short notice. B–8539.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 23; single. Desires position with consulting engineer, contractor, or public utility company. At present taking business course given by the Alexander Hamilton Institute. Fifteen months' experience in drafting, surveying, and construction work. At present employed, but would be available after about two weeks' notice. B–8546.

BRIDGE ENGINEER, Assoc. M. Am. Soc. C. E.; State Highway Department, Middle Western State; graduate of Yale University; age 33; married. Eight years' experience on design and construction of bridges, railroad and highway. Now employed; desires permanent connection with private corporation or railroad, in responsible charge. Eastern location preferred. B–8563.

COST, ESTIMATING OR INDUSTRIAL ENGINEER, Assoc. M. Am. Soc. C. E.; age 33, twelve years of experience, 7 of which were on various phases of railroad work, and 5 as cost and estimating engineer on industrial construction. Experienced in developing cost systems, handling storehouses, estimating, and valuation. Trained for handling contracts. Available now. B–8620.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 25. Varied field and office experience on hydro-electric work. At present, in charge of State road re-location and construction. Desires position on preliminary hydro-electric work or as assistant on hydraulic design. Middle West location preferred. B–8631.

Membership

(From August 6 to September 2, 1924)

Additions

		Date of Membership.
ACKERMAN, Bennet Hubert. With McClellan & Junkersfeld, 68 Trinity Pl., New York, N. Y. (Res., 705 Parker St., Newark, N. J.	Assoc. M.	Feb. 25, 1924
AICHEL, Walter August. Dist. Engr., Corrugated Bar Co., 404 Candler Bldg., Atlanta, Ga.	Assoc. M.	May 19, 1924
ANGEN, John Harrison. Draftsman, C. R. R. of N. J., 1075 Elizabeth Ave., Elizabeth, N. J.	Jun.	May 19, 1924
BAINBRIDGE, David Wallace. With Bureau of Surveys (Res., 4937 North Mervine St.), Philadelphia, Pa.	Assoc. M.	Aug. 4, 1924
BALLEISEN, Leopold Lyon. Constr. Engr. and Supt., Sugarman, Hess & Berger; Res., 415 Ave. C, Brooklyn, N. Y.	Jun. Assoc. M.	Sept. 9, 1919 Aug. 4, 1924
BATHAM, William Stanley. Holmleigh, Granville Rd., Sevenoaks, Kent, England	Assoc. M.	June 16, 1924
BELL, Nelson John. Chf. Engr., Schenck & Williams, 901 Mutual Home Bldg. (Res., 760 Kenilworth Ave.), Dayton, Ohio.	M.	Aug. 4, 1924
BLACK, William Madison, Jr. 418 Pajaro St., Salinas, Calif.	Jun.	June 16, 1924
BOSTWICK, Norris. Office Engr., Flintridge Co., 1535 West 30th St., Los Angeles, Calif.	Assoc. M.	June 16, 1924
BREHM, George Charles. City Engr. and Director of Public Works, City Hall, Waltham, Mass.	Assoc. M.	Aug. 4, 1924
BROWN, Horatio Whittemore. Director, Dept. of Bldg. Constr., Hampton Inst., Hampton, Va.	Jun. Assoc. M. Jun. Assoc. M.	April 17, 1917 June 16, 1924 Oct. 14, 1919 Aug. 4, 1924
BUCK, George Herman. Box 605, Tampa, Fla.		
BUCKLEY, John Morey. Junior Engr., U. S. Engrs., First Dist., New York City, 39 Whitehall St., Room 710, New York, N. Y.	Assoc. M.	Aug. 4, 1924
BUECHNER, Casper. Civ. Engr., Const. Dept. Textile Machine Works, Reading, Pa.	Jun. Assoc. M.	May 28, 1923 Aug. 4, 1924
BURNSIDE, Lewis Everett. City Engr., City Bldg., Sharon, Pa.	Assoc. M.	Aug. 4, 1924
BUTLER, Robert Schenck, 2659 Belvedere Ave., Seattle, Wash.	Jun.	Feb. 25, 1924
CAMPAGNE, Jan van Lookeren. 412 West 110th St., New York, N. Y.	Jun.	Aug. 4, 1924
CAYOT, Paul Peter. Structural and Architectural Draftsman, Walter Kidde & Co., 524 Hudson Ave., West New York, N. J.	Jun.	Aug. 4, 1924
CLAUSSEN, Thomas Hibben. Asst. Engr., Bureau of Reclamation, Dept. of the Interior, Yuma, Ariz.	Jun. Assoc. M.	Nov. 25, 1919 May 19, 1924
COOK, Frank Louis. Pacific Coast Sales Mgr., Chicago Bridge & Iron Works, 338 Rialto Bldg., San Francisco, Calif.	Assoc. M.	Aug. 4, 1924
CRANE, Jacob Leslie, Jr. Municipal Development Engr., 1002 Wrigley Bldg., Chicago, Ill.	Jun. Assoc. M. M.	Dec. 3, 1913 April 14, 1919 April 8, 1924
CURRY, Byron Kenneth. Civ. Engr., Fegles Constr. Co., Ltd., 3408 Humboldt Ave., South, Minneapolis, Minn.	Jun.	Aug. 4, 1924
DALTON, Harry Franklin. With Am. Car & Foundry Co., 165 Broadway, New York, N. Y.	Affiliate	May 19, 1924
DAWSON, Raymond Fillmore. Junior Testing Engr., State Div. of Highways, 100 East Washington St., Springfield, Ill.	Jun.	Aug. 4, 1924
DELEHANTY, William Benedict. Borough Engr., Municipal Bldg., Edgewater, N. J.	Jun. Assoc. M.	April 3, 1922 Aug. 4, 1924
DONALDSON, Clarke. Chf. Asst., Office, Chf. of Constr., City of Atlanta, 910 Peachtree St., Atlanta, Ga.	Assoc. M.	Aug. 4, 1924
DOW, Edwin Arthur. Mech. Engr., Power Constr. Co., 35 Harvard St., Worcester, Mass.	Jun. Assoc. M. M.	Oct. 31, 1911 Oct. 14, 1919 June 16, 1924
DUDLEY, Donald Ashworth. Asst. Engr., U. S. Geological Survey, Box 162, University Station, Tucson, Ariz.	Jun. Assoc. M.	June 19, 1922 Aug. 4, 1924
EDDY, Harrison Prescott, Jr. Asst. Engr., Metcalf & Eddy; 65 Gray Cliff Rd., Newton Center, Mass.	Assoc. M.	Aug. 4, 1924
FAIRCHILD, LeRoy Frank. Structural Engr., Eastman Kodak Co., 3195 Lake Ave., Rochester, N. Y.	M.	Feb. 25, 1924
FISKE, Harold Chamberlayne. Maj., Corps of Engrs., U. S. A.; Dist. Engr., River Impvt., 40 Municipal Bldg., Chattanooga, Tenn.	M.	Aug. 4, 1924
FONT, Manuel. Stop 48, Condado, Porto Rico.	Assoc. M.	Aug. 4, 1924
GAVETT, Weston. Asst. Engr., Clyde Potts, 30 Church St., New York, N. Y. (Res., 312 West Fifth St., Plainfield, N. J.)	Assoc. M.	Aug. 4, 1924
GILLETTE, Paul Clifford. Testing Engr., Dix Dam Hydro-Elec. Project, Burgin, Ky.	Assoc. M.	Aug. 4, 1924
GOULD, Harley Joseph. 6678 Kennedy Ave., Cincinnati, Ohio.	Assoc. M.	Aug. 4, 1924
HAGGERTY, Daniel Joseph. Chf. Estimating Engr., Standard Oil Co., Bayway Refinery (Res., 925 Westfield Ave.), Elizabeth, N. J.	Assoc. M.	Aug. 4, 1924

		Date of Membership.
HARMAN, Harris Jacob. Mgr., Peoria Div., Elliott & Harman Eng. Co., 144 Fredonia Ave., Peoria, Ill.	Assoc. M.	Aug. 4, 1924
HARRUB, Calvin Nelson. Associated with B. H. Klyce, 506 Fourth and First National Bank Bldg., Nashville, Tenn.	M.	May 19, 1924
HENDREN, Robert Fulton. 10535 Prospect Ave., Chicago, Ill.	Jun.	Feb. 25, 1924
HOCKETT, Ray Lewelling. Asst. Engr., State Highway Comm., Topeka, Kans.	Assoc. M.	Aug. 4, 1924
HUFFMAN, Thomas Ellsworth. Civ. Engr., Box 678, Lareda, Tex.	Assoc. M.	Aug. 4, 1924
ICAZA, Eduardo. Box 532, Panama, Panama	Jun.	Feb. 25, 1924
JANSSON, Martin Ernest. 27 East Monroe St., Room 305, Chicago, Ill.	Jun.	June 16, 1924
JONES, William Milne. Asst. Engr., John W. Ferguson Co., 152 Market St., Paterson, N. J.	Assoc. M.	Aug. 4, 1924
KAMINSKY, Morris Moses. Sigma Alpha Mu Fraternity, Corner, Waldron and First St., West Lafayette, Ind.	Jun.	Aug. 4, 1924
KING, William Aubrey. Draftsman, The Terrell Bartlett Engrs., Inc., 612 Calcasieu Bldg., San Antonio, Tex.	Jun.	Aug. 4, 1924
KNOWLES, Clarence Richard. Supt., Water Service, Ill. Cent. R. R., 135 East 11th Pl., Chicago, Ill.	M.	Aug. 4, 1924
KOERNER, Carl Albin. Industrial, Contr. and Cons. Engr. (Koerner Eng. Co.), 426 Odd Fellows Bldg., St. Louis, Mo.	Assoc. M.	Aug. 4, 1924
KOSTING, Frederick William. Asst. to Mgr., Corrugated Bar Co. (Res., 550 West 170th St.), New York, N. Y.	Jun.	May 19, 1924
KRUMMEL, Louis William. 9723 Eightieth St., Woodhaven, N. Y.	Jun.	Feb. 25, 1924
LANDIS, Charles William. Cons. Engr., 439 Mills Bldg., San Francisco, Calif.	Assoc. M.	Aug. 4, 1924
LAWLOR, Joseph Patrick. Secy.-Treas. and Chf. Engr., Layne-Central Co., 1548 Monroe Ave., Memphis, Tenn.	Assoc. M.	Aug. 4, 1924
LEFAVOUR, Roland Winthrop. Asst. Prof., Civ. Eng., Tufts Coll., 24 Beckford St., Beverly, Mass.	Assoc. M.	Aug. 4, 1924
LINVILLE, Ralph Kerwin. City Engr., Danville, Va.	Assoc. M.	Aug. 4, 1924
LLOYD, Robert. Mgr., Midland Improvement Co.; Mgr., Midland Water Co. (Res., 843 Midland Ave.), Midland, Pa.	Assoc. M.	Aug. 4, 1924
McGRANE, John Lawrence. Project Engr., Missouri State Highway Comm., Butler, Mo.	Assoc. M.	April 7, 1924
McGUIRE, Donald David. Asst. Engr., Div. of Highways, State of Illinois, 100 East Washington St., Springfield, Ill.	Jun.	Aug. 4, 1924
McKENZIE, Charles Franklin. (Charles F. McKenzie Co.), Box 155, Miami Beach, Fla.	Jun. Assoc. M.	Dec. 4, 1922 Aug. 4, 1924
MAINE, Herbert Augusta. (H. A. Maine Co.), Marsh Place Bldg., Waterloo, Iowa.	M.	Aug. 4, 1924
MANCHESTER, Burgess. Asst. Engr., Met. Utilities Dist., 2040 North 61st St., Omaha, Nebr.	Assoc. M.	May 19, 1924
MATTHIAS, William Ferron. Structural Engr., The Maine Elec. Co., 35 Commercial St., Portland, Me.	Assoc. M.	Aug. 4, 1924
MAXFIELD, Charles Edward. Structural Engr., 846 Engineers Bldg. (Res., 7311 Elton Ave.), Cleveland, Ohio.	Assoc. M.	Aug. 4, 1924
MYERS, Boyd Simonton. Chf. Engr., Capitol Steel & Iron Co., 2211 West 15th St., Oklahoma City, Okla.	M.	Aug. 4, 1924
NEILER, Samuel Graham. Cons. Engr. (Neiler, Rich & Co.), 431 South Dearborn St., Chicago, Ill.	M.	Feb. 25, 1924
PENNEY, Norman. Mgr., Niagara Falls Branch, Sylvanus B. Nye, 408 Gluck Bldg., Niagara Falls, N. Y.	Jun. Assoc. M.	Mar. 7, 1921 Aug. 4, 1924
PERRY, Emmanuel von Betzen. 20 Hemenway St., Boston, Mass.	Jun.	Feb. 25, 1924
POULSEN, Vilhelm Burchard Weber. Chf. Draftsman, Chf. Engr.'s Office, C. & O. Ry., Richmond, Va.	Assoc. M.	Aug. 4, 1924
PUTNAM, George William. State San. Engr., 1019 West High St., Jefferson City, Mo.	Assoc. M.	Feb. 4, 1924
REECE, Arthur Nelson. Chf. Engr., Kansas City Southern Ry., 509 K. C. S. Bldg., Kansas City, Mo.	M.	Aug. 4, 1924
ROWE, William Penn. Field Engr., San Bernardino; Engr., Coachella Val. County Water Dist., 736 G St., San Bernardino, Calif.	Assoc. M.	Aug. 4, 1924
ROZZELLE, Charles Egbert. Asst. Div. Engr., B. & O. R. R., 306 Hudson Ave., Newark, Ohio.	Assoc. M.	Aug. 4, 1924
SEASHORE, Paul Theodore. Care, Boyd Oil Co., Kirby Bldg., Dallas, Tex.	Jun.	Aug. 4, 1924
SHAPARD, William Allen, Jr. Care, Nashville Bridge Co., Nashville, Tenn.	Jun.	Aug. 4, 1924
SHIFRIN, Hymen. Prin. Asst. to Chf. Engr., Sewers and Paving, Board of Public Service, 300 City Hall, St. Louis, Mo.	Assoc. M.	Aug. 4, 1924
SIEBERT, Christian Ludewig. Dist. Engr., Pennsylvania Dept. of Health, Harrisburg (Res., Camp Hill), Pa.	Assoc. M. M.	April 14, 1919 June 16, 1924
SIMMONS, Donald Jackson. Engr. of Bridges, Warren County Highway Comm., 601 First National Bank Bldg., Vicksburg, Miss.	Assoc. M.	Aug. 4, 1924

		Date of Membership.
SKIDMORE, Hugh Williams. Pres., Chicago Paving Laboratory, 536 Lake Shore Drive, Chicago, Ill.	Assoc. M.	Aug. 4, 1924
SLANTZ, Fred William. Asst. Prof. in Chg., Dept., Graphics, Lafayette Coll., Easton, Pa.	Assoc. M.	Aug. 4, 1924
SLOVENKO, Julius. Acting Chf. Engr., Cuyamel Fruit Co., Puerto Cortez, Honduras	Jun. Assoc. M.	June 19, 1922 Aug. 4, 1924
STIEFEL, Fred Walter. 1347 Teaneck Rd., West Englewood, N. J.	Assoc. M.	Aug. 4, 1924
STIERLIN, Gustave Arnold. Engr., S. Diesher & Sons, 325 Clearview Ave., Crafton, Pa.	M.	Aug. 4, 1924
SWAN, Abram, Jr. Director, Streets and Public Impvts., City of Trenton, City Hall, Trenton, N. J.	M.	Aug. 4, 1924
TOWNSHEND, Rolph. Insp., State Roads Comm., 129 Washington Ave., Chestertown, Md.	Jun.	Aug. 4, 1924
van den BERG, Cornelis, Jr. Asst. Chf. Engr., Alabama Public Service Comm., Montgomery, Ala.	Jun.	Feb. 25, 1924
VICKERS, Paul Amos. Engr., Quinton, Code & Hill, 1106 Hollingsworth Bldg., Los Angeles, Calif.	Jun. Assoc. M.	June 16, 1919 Aug. 4, 1924
VOGEL, Joshua Holmes. Archt. and Engr. (Baker, Vogel & Roush), Hoge Annex Bldg., Seattle, Wash.	Assoc. M. M.	Sept. 11, 1917 June 16, 1924
WEST, Randolph Cooper. Secy.-Treas., G. C. Street Constr. Co., 2112 Main St., Houston, Tex.	Jun.	Feb. 25, 1924
WINTER, Hugh Herman. Asst. Civ. Engr. and Structural Engr., Div. of Bridges and Structures of Los Angeles, 6199 Roy St., Los Angeles, Calif.	Assoc. M.	June 16, 1924
WOOD, Galen Arthur. Structural Engr., Frank G. White, 112 Market St., Room 623, San Francisco, Calif.	Assoc. M.	Aug. 4, 1924
WORTHINGTON, Harold Legg. 4515 Eighteenth Ave., N. E., Seattle, Wash.	Jun.	Feb. 25, 1924

Resignations

MEMBERS

	Date of Resignation
REDDING, Joseph Herbert	Aug. 1, 1924

ASSOCIATE MEMBERS

BROWN, Percy Dalles	Aug. 1, 1924

Deaths

BYERS, Alexander Mosby Clayton. Elected Member, November 6, 1907; died April 9, 1924.

McCOMB, Charles Oscar. Elected Member, May 2, 1900; died July 27, 1924.

PAGE, Arthur Southwick. Elected Associate Member, July 9, 1912; died July 10, 1924.

PERKINS, Locke McIndoe. Elected Member, September 9, 1919; died July 2, 1924.

TOMLINSON, Daniel Anderson. Elected Associate Member, May 28, 1923; died August 7, 1924.

Total Membership of the Society, September 2, 1924

Members	**4 932**	
Associate Members	**5 480**	
Corporate Members		**10 412**
Honorary Members		**13**
Juniors		**708**
Affiliates		**168**
Fellows		**8**
Total		**11 309**